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EXAMINER
ENGLAND, DAVID E

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/578,019	KRAUSE ET AL.
	Examiner	Art Unit	
	David E. England	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2006*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3 – 30, and 32 – 53* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3 – 30, and 32 – 53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 October 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1, 3 – 30, and 32 – 53 are presented for examination.

Drawings

2.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every

feature of the invention specified in the claims. Therefore, the "multicast group reliably receives

every unit in the first unit of work stream in the expected defined order" must be shown or the

feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to

the Office action to avoid abandonment of the application. Any amended replacement drawing

sheet should include all of the figures appearing on the immediate prior version of the sheet,

even if only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure

must be removed from the replacement sheet, and where necessary, the remaining figures must

be renumbered and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The

objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4.   Claims 1, 3 – 30, and 32 – 53 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

5.   Claims 1 and 29 recite the limitation of, "the multicast group reliably receives every unit in the first unit of work stream in the expected defined order." Applicant is asked to specifically point out where in the specification this is found along with where in the drawings it is correlated to.

6.   All other claims are rejected for their dependency on the independent claims.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 1 3, 4, 9 – 11, 15, 16, 22, 29, 30, 32, 33, 41, 42 and 46 are rejected under 35

U.S.C. 103(a) as being unpatentable over Miller et al. U.S. Patent No. 6151696 (hereinafter

Miller) in view of Nessett et al. U.S. Patent No. 5968176 (hereinafter Nessett) in further view of

Van Loo et al. U.S. Patent No. 6064672 (hereinafter Van Loo) in further view of Ruszczyk

(6205150).

9.   As per claim 1, as closely interpreted by the Examiner, Miller teaches a data processing

system comprising:

10.   a source device participating in a multicast group and including:

11.   a first source application instance (AI) producing a first unit of work stream, (e.g. col. 2,

line 34 – col. 4, line 11 & col. 4, line 55 – col. 5, line 22); and

12.   communication services (CS), (e.g. col. 2, line 34 – col. 4, line 11 & col. 4, line 55 – col.

5, line 22);

13.   multiple destination devices participating in the multicast group, each destination device

in the multicast group including:

14.   at least one destination AI which consumes units of work, (e.g. col. 2, line 34 – col. 4,

line 11 & col. 4, line 55 – col. 5, line 22); and CS, (e.g. col. 2, line 34 – col. 4, line 11 & col. 4,

line 55 – col. 5, line 22);

15.   multiple source and destination resources (SDRs), each SDR implementing a reliable

transport service between the source device and a corresponding one of the multiple destination

devices in the multicast group for delivery of the first unit of work stream at the corresponding

one of the multiple destination devices, (e.g. col. 2, line 34 – col. 4, line 11 & col. 4, line 55 –

col. 5, line 22), wherein each SDR includes:

16.   wherein the CS in the source device correlates the independent reliable transport services

and verifies that a predetermined percentage of destination AIs in the multicast group reliably

receives every unit in the first unit of work stream in the expected defined order, (e.g., col. 4, line

55 – col. 5, line 22, *"done list"* & col. 11, line 39 – col. 12, line 26).

17.   Miller does not specifically teach communication services/fabric providing

communication between the source device and the multiple destination devices; and

18.   guaranteeing strong ordering of the first unit of work stream received at the

corresponding one of the multiple destination devices;

19.   first SDR resources at the source device having at least one queue configured to hold

transmitted from the source device to the corresponding one of the multiple destination devices

but not acknowledged units of work and not yet transmitted units of work; and

20.   second SDR resources at the corresponding one of the multiple destination devices

having state information including an expected next sequence number value indicating an

expected defined order corresponding to a next unit of work to be received; and

21.   independent reliable transport services.

22.   Nessett teaches communication services/fabric providing communication between the

source device and the multiple destination devices, (e.g. col. 13, lines 9 – 31 & col. 11, line 54 –

67 & col. 12, line 66 – col. 13, line 31). It would have been obvious to one skilled in the art at the

time the invention was made to combine Miller with Nessett because it would be more efficient

and reliable for a system to utilize a physical connection rather than a wireless one.

23.   Van Loo teaches guaranteeing strong ordering of the first unit of work stream received at

the corresponding one of the multiple destination devices, (e.g. col. 1, lines 21 – 60 & col. 3,

lines 11 – 61);

24.   second SDR resources at the corresponding one of the multiple destination devices

having state information including an expected next sequence number value indicating an

expected defined order corresponding to a next unit of work to be received, (e.g. col. 21, lines 25

– 40). It would have been obvious to one skilled in the art at the time the invention was made to

combine Van Loo with the combine system of Miller and Nessett because utilizing the properties

of strong ordering, keep track of transmitted packets in a specific order, would make the system

function more efficient as to the tracking of lost packets.

25.   Ruszczyk teaches first SDR resources at the source device having at least one queue

configured to hold transmitted from the source device to the corresponding one of the multiple

destination devices but not acknowledged units of work and not yet transmitted units of work,

(e.g. col. 4, line 47 – col. 5, line 4); and

26.   independent reliable transport services, (e.g. col. 2, lines 23 – 47). It would have been

obvious to one skilled in the art at the time the invention was made to combine Ruszczyk with

the combine system of Miller, Nessett and Van Loo because it would be more efficient for a

system utilize higher class-of-service and quality-of-service connections transmitting higher

priority data packets. Thus, various customers on the network system will transmit and receive

both high priority and low priority data packets. Furthermore, it would be obvious to one skilled

in the art to have resources that are queued without acknowledges for them because if they are

part of an initial transmission, one cannot have an acknowledged unit because it has not been

transmitted yet.

27.   As per claim 3, as closely interpreted by the Examiner, Miller teaches the predetermined

percentage is 100% of the destination AIs, (e.g. col. 11, line 39 – col. 12, line 26).

28.   As per claim 4, as closely interpreted by the Examiner, Miller teaches the predetermined

percentage is less than 100% of the destination AIs, (e.g. col. 11, line 39 – col. 12, line 26).

29.   As per claim 9, as closely interpreted by the Examiner, Miller teaches the CS in the

source device replicates the first unit of work stream for transmission to the destination AIs in

the multicast group, (e.g. col. 2, line 42 – col. 4, line 11 & col. 12, line 53 – col. 13, line 50).

30.   As per claim 10, as closely interpreted by the Examiner, Miller teaches the

communication services/fabric includes at least one replicater component for replicating the first

unit of work stream for transmission to the destination AIs in the multicast group, (e.g. col. 2,

line 42 – col. 4, line 11 & col. 12, line 53 – col. 13, line 50).

31.   As per claim 11, Miller teaches the data processing system further comprises:

32.   at least one middleware AI, (e.g. col. 12, line 53 – col. 13, line 50).

33.   As per claim 15, as closely interpreted by the Examiner, Miller teaches an AI,

middleware AI, or CS performs a get attribute operation to query current attributes of the

multicast group, (e.g. col. 9, lines 32 – 39 & col. 11, line 40 – col. 12, line 26).

34.   As per claim 16, as closely interpreted by the Examiner, Miller teaches an AI,

middleware AI, or CS performs a set attribute operation to set multicast group attributes, (e.g.

col. 9, lines 32 – 39 & col. 11, line 40 – col. 12, line 26).

35.   As per claim 30, as closely interpreted by the Examiner, Miller teaches consuming the

first unit of work stream with the at least one destination AI at each of the multiple destination

devices participating in the multicast group, (e.g. col. 2, line 34 – col. 4, line 11 & col. 4, line 55

– col. 5, line 22).

36.   As per claim 22, as closely interpreted by the Examiner, Miller, Nessett and Van Loo do

not specifically teach the source device also functions as a destination device and at least one of

the destination devices also functions as a source device. Official Notice is taken that it was a

common practice to have the source device also functions as a destination device and at least one

of the destination devices also functions as a source device at the time the instant invention was

made.

37.   It would have been obvious to one having ordinary skill in the computer art at the time of

the invention was made to modify the data processing system disclosed by the combination of

Miller, Nessett and Van Loo to have the source device also functions as a destination device and

at least one of the destination devices also functions as a source device using the teaching of

common practice. The modification would be obvious because one of ordinary skill in the art

would be motivated to add this limitation because the source and destination is determined by

whichever node in the network wants to multicast to other nodes on the network. If later after the

multicast session is finished, the previous destination node want to multicast information across

the network all one would have to do is set up a session and add the nodes that wish to receive

the information.

38.   Claims 29, 32, 33, 41, 42 and 46 are rejected for similar reasons as stated above.

39.   Claims 5 – 8, 18 – 20, 34 – 37 and 44 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Miller, Nessett, Van Loo and Ruszczyk as applied to claims 1, 2, 29 and 31

above, and in further view of Block et al. (6192417) (hereinafter Block).

40.   As per claim 5, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk do not specifically teach an acknowledgement counter which counts

acknowledgements received from the corresponding destination devices in the multicast group

indicating that the corresponding destination device has received a unit of work in the first unit

of work stream. Block teaches an acknowledgement counter which counts acknowledgements

received from the corresponding destination devices in the multicast group indicating that the

corresponding destination device has received a unit of work in the first unit of work stream,

(e.g. col. 15, line 51 – col. 16, line 39 & col. 18, line 41 – col. 19, line 4). It would have been

obvious to one skilled in the art at the time the invention was made to combine Block with the combine system of Miller, Nessett, Van Loo and Ruszczyk because it would be more efficient for a system to count the number of acknowledgements so to keep track of the different packets that have not arrived or have errors in them and have these packets retransmitted.

41.   As per claim 6, as closely interpreted by the Examiner, Miller teaches the predetermined percentage of destination AI but Miller, Nessett, Van Loo and Ruszczyk do not specifically teach the CS in the source device generates a completion event when the acknowledgement counter indicates that the multicast group have acknowledged the unit of work has been received. Block teaches the CS in the source device generates a completion event when the acknowledgement counter indicates that the multicast group have acknowledged the unit of work has been received, (e.g. col. 15, line 51 – col. 16, line 39 & col. 18, line 41 – col. 19, line 4). It would have been obvious to one skilled in the art at the time the invention was made to combine Block with the combine system of Miller, Nessett, Van Loo and Ruszczyk because it would be more efficient if the system utilized a percentage of acknowledgement counters to almost predict the type of service that a specific node might need for the missing acknowledgements that need to be retransmitted.

42.   As per claim 7, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and Ruszczyk do not specifically teach the CS in the source device includes:

43.   a bit-mask array which assigns a unique bit for each destination AI in the multicast group and clears each bit as a corresponding acknowledgment is received from the corresponding

destination device in the multicast group indicating that the corresponding destination device has

received a unit of work in the first unit of work stream. Block teaches the CS in the source device

includes:

44.   a bit-mask array which assigns a unique bit for each destination AI in the multicast group

and clears each bit as a corresponding acknowledgment is received from the corresponding

destination device in the multicast group indicating that the corresponding destination device has

received a unit of work in the first unit of work stream, (e.g. col. 15, line 51 – col. 16, line 39 &

col. 18, line 41 – col. 19, line 4). It would have been obvious to one skilled in the art at the time

the invention was made to combine Block with the combine system of Miller, Nessett, Van Loo

and Ruszczyk because it would be more efficient for a system to have separate indicators, (i.e.

bit-mask array), to indicate which destination nodes did not receive a specific unit of work in the

first unit of work stream and only have to send the specific unit of work in the first unit of work

stream to a specific destination node instead of sending the unit of work in the first unit of work

stream to every destination node in the network which could cause network congestion.

45.   As per claim 8, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk do not specifically teach the CS in the source device generates a completion event

when the bit-mask array has the predetermined percentage of bits cleared in the bit-mask array

indicating that the predetermined percentage of destination AIs in the multicast group have

acknowledged the unit of work has been received. Block teaches the CS in the source device

generates a completion event when the bit-mask array has the predetermined percentage of bits

cleared in the bit-mask array indicating that the predetermined percentage of destination AIs in

the multicast group have acknowledged the unit of work has been received, (e.g. col. 15, line 51

– col. 16, line 39 & col. 18, line 41 – col. 19, line 4). It would have been obvious to one skilled in

the art at the time the invention was made to combine Block with the combine system of Miller,

Nessett, Van Loo and Ruszczyk because for similar reasons as stated above.

46.   As per claim 18, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk do not specifically teach an agreed to multicast address is employed to address AIs in

the multicast group. Block teaches an agreed to multicast address is employed to address AIs in

the multicast group, (e.g. col. 15, lines 19 – 50). It would have been obvious to one skilled in the

art at the time the invention was made to combine Block with the combine system of Miller,

Nessett, Van Loo and Ruszczyk because it would be more convenient for a system to use one

multicast address port that can monitor, receive and transmit unit of work in the first unit of work

stream in a multicast environment instead of having numerous multicast address port that could

all send the same information across the network that could cause network congestion.

47.   As per claim 19, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk do not specifically teach the CS in each device participating in the multicast group

interprets the agreed to multicast address and responds to the agreed to multicast address to

perform a reliable multicast operation on behalf of the corresponding destination AI. Block

teaches the CS in each device participating in the multicast group interprets the agreed to

multicast address and responds to the agreed to multicast address to perform a reliable multicast

operation on behalf of the corresponding destination AI, (e.g. col. 14, line 43 – col. 16, line 21).

It would have been obvious to one skilled in the art at the time the invention was made to combine Block with the combine system of Miller, Nessett, Van Loo and Ruszczyk because of similar reasons as stated above.

48.   As per claim 20, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and Ruszczyk do not specifically teach the data processing system performs a reliable multicast operation having substantially the same semantic behavior relative to a given AI as an unreliable multicast operation. Block teaches the data processing system performs a reliable multicast operation having substantially the same semantic behavior relative to a given AI as an unreliable multicast operation, (e.g. col. 14, line 43 – col. 16, line 21). It would have been obvious to one skilled in the art at the time the invention was made to combine Block with the combine system of Miller, Nessett, Van Loo and Ruszczyk because it would be more convenient for a system to utilize protocols such a TCP and UDP for transmitting information across a network instead of using protocols that are not standard and having to add more overhead to a packet in order to transmit to other networks that do not support the non-standard protocol, causing a slower network.

49.   Claims 34 – 37 and 44 are rejected for similar reasons as stated above.

50.   Claims 12 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller, Nessett, Van Loo and Ruszczyk as applied to claims 1, 11 and 29 above, and in further view of Hamilton et al. (6392993) (hereinafter Hamilton).

51.   As per claim 12, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk do not specifically teach the CS in the source device includes a timing window and if

the timing window expires without necessary conditions for a completion event occurring, then

the middleware AI or CS tracks and resolves missing acknowledgments. Hamilton teaches the

CS in the source device includes a timing window and if the timing window expires without

necessary conditions for a completion event occurring, then the middleware AI or CS tracks and

resolves missing acknowledgments, (e.g. col. 27, line 1 – col. 28, line 49). It would have been

obvious to one·skilled in the art at the time the invention was made to combine Hamilton with

the combine system of Miller, Nessett, Van Loo and Ruszczyk because it would be more

efficient for a system to retransmit a packet that has not been acknowledged so incase of a

transmission error the system will retransmit the missing packet after an amount of time so to be

certain that the destination node will receive the entire transmitted data, preventing missed

packet errors.

52.   Claim 38 is rejected for similar reasons as stated above.

53.   Claims 13, 14, 17, 39, 40 and 43 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Miller, Nessett, Van Loo and Ruszczyk as applied to claims 1, 11 and 29

above, and in further view of Muller et al. (6256740) (hereinafter Muller).

54.   As per claim 13, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk do not specifically a given AI joins the multicast group by performing a multicast join

operation, and the middleware AI or CS determines whether the given AI can join the multicast

group, validates access rights, and informs the devices participating in the multicast group of

changes in the group. Muller teaches a given AI joins the multicast group by performing a

multicast join operation, and the middleware AI or CS determines whether the given AI can join

the multicast group, validates access rights, and informs the devices participating in the multicast

group of changes in the group, (e.g. col. 18, line 47 – col. 19, line 25). It would have been

obvious to one skilled in the art at the time the invention was made to combine.Muller with the

combine system of Miller, Nessett, Van Loo and Ruszczyk because if an AI was required to have

information that is being multicasted across the network it would be more efficient for a system

to add the new AI to the multicast group instead of setting up and sending a separate

transmission to that specific AI.

55.   As per claim 14, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk do not specifically teach a given AI leaves the multicast group by performing a

multicast leave operation, and the middleware AI or CS informs the devices participating in the

multicast group to remove the given AI from the destination list, to complete all in-flight units of

work as though the given AI were still present, and to not target the given AI for units of work

not yet launched. Muller teaches a given AI leaves the multicast group by performing a multicast

leave operation, and the middleware AI or CS informs the devices participating in the multicast

group to remove the given AI from the destination list, to complete all in-flight units of work as

though the given AI were still present, and to not target the given AI for units of work not yet launched, (e.g. col. 31, lines 29 – 58). It would have been obvious to one skilled in the art at the time the invention was made to combine Muller with the combine system of Miller, Nessett, Van Loo and Ruszczyk because it would be more efficient for a system to have a given AI leave a multicast group if the AI does not need any of the information that is being transmitted. This will prevent the AI from receiving packets that are not needed and could make a network run faster because if the AI is not receiving any packets it will not have to send acknowledgements for transmitted information it receive and will not need retransmitted information.

56.   As per claim 17, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and Ruszczyk do not specifically teach middleware AI performs a remove member operation to remove a given AI from the multicast group without involving the given AI. Muller teaches middleware AI performs a remove member operation to remove a given AI from the multicast group without involving the given AI, (e.g. col. 31, lines 29 – 58). It would have been obvious to one skilled in the art at the time the invention was made to combine Muller with the combine system of Miller, Nessett, Van Loo and Ruszczyk because of similar reasons as stated above.

57.   Claims 39, 40 and 43 are rejected for similar reasons as stated above.

58.   Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller, Nessett, Van Loo and Ruszczyk as applied to claim 1 above, and in further view of VanDoren et al. (6279084) (hereinafter VanDoren).

59.   As per claim 21, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk do not specifically teach the multiple SDRs are grouped into multiple SDR groups,

wherein each of the multiple SDR groups includes at least one SDR and is assigned a unique

priority level for effecting throughput and response time of units of work transmitted by the at

least one SDR. VanDoren teaches the multiple SDRs are grouped into multiple SDR groups,

wherein each of the multiple SDR groups includes at least one SDR and is assigned a unique

priority level for effecting throughput and response time of units of work transmitted by the at

least one SDR, (e.g. col. 24, lines 29 – 60). It would have been obvious to one skilled in the art at

the time the invention was made to combine VanDoren with the combine system of Miller,

Nessett, Van Loo and Ruszczyk because it would be more efficient if the system could

differentiate from the different SDRs and if there are SDRs that require immediate attention they

could be allocated bandwidth to accommodate the network and provide a faster multicasting

session.

60.   As per claim 23, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk teach all that is disclosed above and Nessett teaches source SDR resources, at the

source device, transmitting the first unit of work stream in a serial unit of work stream having

units of work in a defined order over the communication services/fabric, (e.g. col. 13, lines 9 –

31 & col. 16, lines 13 – 29). Miller, Nessett, Van Loo and Ruszczyk do not specifically teach

each SDR includes:

61.   destination SDR resources, at the corresponding destination device, receiving the serial

unit of work stream, and demultiplexing the serial unit of work stream into units of work

provided to the corresponding at least one destination AI. VanDoren teaches each SDR includes:

62.   destination SDR resources, at the corresponding destination device, receiving the serial

unit of work stream, and demultiplexing the serial unit of work stream into units of work

provided to the corresponding at least one destination AI, (e.g. col. 10, line 61 – col. 11, line 8).

It would have been obvious to one skilled in the art at the time the invention was made to

combine VanDoren with the combine system of Miller, Nessett, Van Loo and Ruszczyk because

if the serial connection transmitted information that was multiplexed it would be more efficient if

the system utilized the demultiplexing function so the system could read and understand the data

that it was sent.

63.   Claims 24, 26, 27, 47, 51 and 52 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Miller, Nessett, Van Loo, Ruszczyk and VanDoren as applied to claims 1, 23

and 29 above, and in further view of Hamilton (6392993).

64.   As per claim 24, as closely interpreted by the Examiner, Miller, Nessett, Van Loo,

Ruszczyk and VanDoren do not specifically teach the destination SDR resources provide a

negative acknowledgement (NAK) for a unit of work received ahead of its defined order.

Hamilton teaches the destination SDR resources provide a negative acknowledgement (NAK) for

a unit of work received ahead of its defined order, (e.g. col. 27, line 23 – col. 28, line 49). It

would have been obvious to one skilled in the art at the time the invention was made to combine

Hamilton with the combine system of Miller, Nessett, Van Loo, Ruszczyk and VanDoren because it would be more efficient for a system to send a NAK if information is sent out of order so not to cause errors in packet processing from packets that are sent and received in the network.

65.   As per claim 26, as closely interpreted by the Examiner, Miller, Nessett, Van Loo, Ruszczyk and VanDoren do not specifically teach the destination SDR resources provide a positive acknowledgement (ACK) for each unit of work which is successfully received and processed by the destination SDR resources. Hamilton teaches the destination SDR resources provide a positive acknowledgement (ACK) for each unit of work which is successfully received and processed by the destination SDR resources, (e.g. col. 10, line 33 – col. 11, line 26 & col. 27, line 23 – col. 28, line 49). It would have been obvious to one skilled in the art at the time the invention was made to combine Hamilton with the combine system of Miller, Nessett, Van Loo, Ruszczyk and VanDoren because of similar reasons stated above.

66.   As per claim 27, as closely interpreted by the Examiner, Miller, Nessett, Van Loo, Ruszczyk and VanDoren do not specifically teach the destination SDR resources provide a cumulative positive acknowledgement (ACK) for a set of units of work that indicate that all units of work in the set of units of work up to and including a current unit of work have been successfully received and processed by the destination SDR resources. Hamilton teaches the destination SDR resources provide a cumulative positive acknowledgement (ACK) for a set of units of work that indicate that all units of work in the set of units of work up to and including a

current unit of work have been successfully received and processed by the destination SDR

resources, (e.g. col. 10, line 33 – col. 11, line 26 & col. 27, line 23 – col. 28, line 49). It would

have been obvious to one skilled in the art at the time the invention was made to combine

Hamilton with the combine system of Miller, Nessett, Van Loo, Ruszczyk and VanDoren

because it would be more efficient for a system to transmit a cumulative ACK when all

destination nodes have received there last units of work in the set of units of work so to save

bandwidth on one transmission instead of sending multiple ACK messages that could slow down

a network.

67.   Claims 47, 51 and 52 are rejected for similar reasons as stated above.

68.   Claims 25 and 48 – 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Miller, Nessett, Van Loo, Ruszczyk, VanDoren and Hamilton as applied to claims 1, 23 and 29

above, and in further view of Miller (5553083) (hereinafter Miller2).

69.   As per claim 25, as closely interpreted by the Examiner, Miller, Nessett, Van Loo,

Ruszczyk, VanDoren and Hamilton do not specifically teach the destination SDR resources drop

a unit of work received ahead of its defined order. Miller2 teaches the destination SDR resources

drop a unit of work received ahead of its defined order, (e.g. col. 7, lines 36 – 54). It would have

been obvious to one skilled in the art at the time the invention was made to combine Miller2 with

the combine system of Miller, Nessett, Van Loo, Ruszczyk, VanDoren and Hamilton because it

would be more efficient for a system to drop a unit of work received ahead of its defined order so

all packets can be ACK in the order they were sent and not cause errors in having duplicate units

of work that would be received later in transmission, which could also cause errors in the system.

70.   As per claim 49, as closely interpreted by the Examiner, Miller, Nessett, Van Loo,

Ruszczyk, VanDoren and Hamilton do not specifically teach temporarily storing a unit of work

received at a corresponding destination device ahead of a defined order assigned to the unit of

work. Miller2 teaches temporarily storing a unit of work received at a corresponding destination

device ahead of a defined order assigned to the unit of work, (e.g. col. 7, lines 36 – 54). It would

have been obvious to one skilled in the art at the time the invention was made to combine

Miller2 with the combine system of Miller, Nessett, Van Loo, Ruszczyk, VanDoren and

Hamilton because it would be more efficient if the system temporarily storing a unit of work

received at a corresponding destination device ahead of a defined order so the system can

decipher if the unit of work received is in fact ahead of a defined order.

71.   As per claim 50, as closely interpreted by the Examiner, Miller and Nessett do not

specifically teach performing a resynchronization operation to recover a missing intermediate

unit of work. Van Loo teaches performing a resynchronization operation to recover a missing

intermediate unit of work, (e.g. col. 13, lines 44 – 63). It would have been obvious to one skilled

in the art at the time the invention was made to combine Van Loo with the combine system of

Miller and Nessett because it would be more efficient for a system to return to a synchronic state

as it was before so not to initiate errors in the system from transmitting information out of synch

with the other nodes in the multicasting group.

72.   Claim 48 is rejected for similar reasons as stated above.

73.   Claims 28 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller,

Nessett, Van Loo and Ruszczyk as applied to claims 1, 18 and 29 above, and in further view of

Mallory (6335933).

74.   As per claim 28, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk do not specifically teach the destination SDR resources drop a unit of work in response

to an indication that the unit of work is a duplicate unit of work. Mallory teaches the destination

SDR resources drop a unit of work in response to an indication that the unit of work is a

duplicate unit of work, (e.g. col. 9, lines 40 – 26). It would have been obvious to one skilled in

the art at the time the invention was made to combine Mallory with the combine system of

Miller, Nessett, Van Loo and Ruszczyk because of similar reasons as stated above.

75.   Claim 53 is rejected for similar reasons as stated above.

76.   Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller, Nessett,

Van Loo and Ruszczyk as applied to claim 29 above, and in further view of Block (6192417) in

further view of VanDoren (6279084).

77.   As per claim 45, as closely interpreted by the Examiner, Miller, Nessett, Van Loo and

Ruszczyk do not specifically teach grouping the multiple reliable transport services into multiple

reliable transport service groups, wherein each of the multiple reliable transport service groups

includes at least one reliable transport service; and

assigning a unique priority level to each reliable transport service group for effecting throughput

and response time of units of work transmitted by the at least one reliable transport service.

Block teaches grouping the multiple reliable transport services into multiple reliable transport

service groups, wherein each of the multiple reliable transport service groups includes at least

one reliable transport service, (e.g. col. 14, line 43 – col. 16, line 21). It would have been obvious

to one skilled in the art at the time the invention was made to combine Block with the combine

system of Miller, Nessett, Van Loo and Ruszczyk because of similar reasons stated in the claims

above. VanDoren teaches assigning a unique priority level to each reliable transport service

group for effecting throughput and response time of units of work transmitted by the at least one

reliable transport service, (e.g. col. 24, lines 29 – 60). It would have been obvious to one skilled

in the art at the time the invention was made to combine VanDoren with the combine system of

Miller, Nessett, Van Loo, Ruszczyk and Block because of similar reasons stated in the claims

above.

Response to Arguments

78.   Applicant's arguments with respect to claims 1, 3 – 30, and 32 – 53 have been considered

but are moot in view of the new ground(s) of rejection. Applicant is asked to respond specifically

to the newly added 112 rejection in order to determine whether or not the prior art can still be

interpreted in light of the newly added limitations.

Conclusion

Any inquiry concerning this communication or earlier communications from the

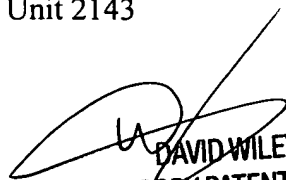examiner should be directed to David E. England whose telephone number is 571-272-3912.

The examiner can normally be reached on Mon-Thur, 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David A. Wiley can be reached on 571-272-3923. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

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like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David E. England
Examiner
Art Unit 2143

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